

## Photochromism of 3H-2,1,4-benzoxadiazine 4-oxides with heterocyclic substituents on the benzene ring

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### Abstract

© 2017, Pleiades Publishing, Ltd. 2H-Benzimidazole 1,3-dioxides undergo thermal isomerization to 3H-2,1,4-benzoxadiazine 4-oxides which are converted to 2H-benzimidazole 1-oxides on further heating. Irradiation of 3H-2,1,4-benzoxadiazine 4-oxides with sunlight induces their transformation to 2H-benzimidazole 1,3-dioxides. 3H-2,1,4-Benzoxadiazine 4-oxides containing nucleophilic heterocyclic substituents are considerably more stable to sunlight, and they can be used as photochromic compounds.

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### References

- [1] Photochromism: Molecules and Systems, Dürr, H. and Bouas-Laurent, H., Eds., Amsterdam Elsevier, 1990.
- [2] Organic Photochromic and Thermochromic Compounds, Crano, J.C. and Guglielmetti, R.J., Eds., New York, Plenum, 1999.
- [3] Gromov, S.P., Fotokhromnye svoistva organicheskikh molekul. Uchebnoe posobie (Photochromic Properties of Organic Molecules. Tutorial) Moscow: Mosk. Inst. Tonk. Khim. Tekhnol. imeni M.V. Lomonosova, 2008.
- [4] Samsonov, V.A., Bagryanskaya, I.Yu., Gatilov, Yu.V., and Savel'ev, V.A., Russ. Chem. Bull., Int. Ed., 2011, vol. 60, no. 8, p. 1723. doi 10.1007/s11172-011-0257-x
- [5] Chugunova, E., Samsonov, V., Gerasimova, T., Rybalova, T., and Bagryanskaya, I., Tetrahedron, 2015, vol. 71, p. 7233. doi 10.1016/j.tet.2015.03.096
- [6] Chugunova, E.A., Akylbekov, N.I., Gavrilov, N.V., Samsonov, V.A., Sitnov, S.A., Dobrynin, A.B., Pudovik, M.A., and Burilov, A.R., Russ. J. Gen. Chem., 2016, vol. 86, no. 11, p. 2548. doi 10.1134/S1070363216110232